National Permitting Services – Water Resources
Environment Agency
Iceni House
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IP3 9JD

15th December 2014 By email

Dear Sir / Madam,

LICENCE RENEWAL APPLICATIONS TO EXTRACT WATER FROM PLUMSGATE LANE AND LUDHAM ROAD BOREHOLES

The RSPB **supports** the Environment Agency's "minded to" decision to refuse the renewal of two abstraction licences at Catfield on the basis of potential in combination impacts upon the Snipe Marsh component of The Broads Special Area of Conservation (SAC) and the Ant Broads and Marshes Site of Special Scientific Interest (SSSI). However we consider that new information not taken into account by the Environment Agency in reaching the "minded to" decision means that the licence renewals should also be turned down due to the potential in combination impacts on the Catfield Fen component of the SAC and SSSI.

The Plumsgate Lane and Ludham Road boreholes are adjacent to component sites of The Broads SAC and the Ant Broads and Marshes SSSI: Catfield Fen and Sutton Fen. These sites support many rare and threatened species that are found either nowhere else in the UK, or in very few sites. These species are highly vulnerable to very small changes to the water chemistry and levels. The available evidence cannot demonstrate that water abstraction is not adversely affecting the integrity of these parts of The Broads SAC or Ant Broads and Marshes SSSI. Consequently, a precautionary approach must be taken by not approving the two licence renewal applications, as it is not possible to demonstrate that renewal of the licences is not contributing and will not continue to contribute to the deterioration observed at Snipe Marsh or Catfield Fen.

Below the RSPB summarises the information we consider supports its position. We consider such information strengthens the Environment Agency's case regarding the need to refuse the licences.

1. Background

In August 2012, the RSPB was made aware that A.W. Alston, as a 'sole trader', had submitted two licence renewal applications to abstract annually 68 million litres of water from a borehole at Plumsgate Road and 22.7 million litres of water from a borehole at Ludham Road, Catfield, Norfolk. The water is intended to irrigate potatoes, salad crops, sugar beet and cereals. The RSPB objected to the licences being renewed due to the lack of evidence to demonstrate that they were not adversely

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affecting Catfield Fen and that impacts on Sutton Fen had not been considered. These fen sites are components of the following designated sites:

- The Broads SAC
- Broadland Ramsar site
- Broadland Special Protection Area (SPA)
- Ant Broads and Marshes SSSI

The Environment Agency subsequently renewed the licences until March 2015 to enable further assessment to be undertaken to determine the potential effect of the two water abstraction licences on designated sites.

2. Overview of RSPB work at Catfield Fen and Sutton Fen

The RSPB owns and manages Sutton Fen and manages part of Catfield Fen on behalf of Butterfly Conservation. Since 2012, the RSPB has undertaken significant work to understand water quality, water levels and ecological integrity of Sutton Fen and, since 2013, Catfield Fen. This has included:

- Water quality sampling aligned with Environment Agency monitoring
- Water level analysis
- Sediment coring to test for soil pH
- *Sphagnum* spp. mapping around core fen orchid area on Catfield Fen
- Baseline survey of fen orchid
- Updated water beetle survey on Catfield Fen following 2004 survey.

Our observations demonstrated that interest features on [redacted] of Catfield Fen have declined in quality, to the extent that Natural England has consequently declared the SSSI Unit to be in "Unfavourable declining" condition. The identified reasons for adverse condition are:

- Freshwater – water abstraction;
- Inappropriate scrub control;
- Other (this is understood to be change in habitat suitable for fen orchid).

We have also undertaken enhanced management across both sites to improve habitat quality and manage water movement across the sites where possible. Despite these improvements Catfield Fen has failed to show any indications of site deterioration being halted, whilst Sutton Fen remains largely in favourable or unfavourable recovering condition. *Sphagnum* spp. growth at Catfield Fen continues at a rapid pace and species richness across the site continues to decline.

3. RSPB position regarding the Environment Agency's "minded to" decision on the Catfield water abstraction licence renewals

Our detailed submission set out in the Appendix 1 to this letter addresses the following areas:

- Legal and policy framework for the conservation of statutorily designated nature conservation sites and biodiversity;
- Nature Conservation importance of Catfield Fen and Sutton Fen;
- Site and water management undertaken at Catfield Fen and Sutton Fen;
- RSPB's comments on the groundwater model;

- RSPB position regarding the abstraction licence renewals impacts on the Catfield Fen component of the Broads SAC.

Having reviewed the available information the RSPB concludes that the ecological changes on Catfield Fen are likely a consequence of reduced alkaline groundwater reaching the site, resulting in a greater influence of acidic rainwater inputs allowing *Sphagnum* spp. to grow and further modify the site's water chemistry and species assemblage. This view is supported by Natural England's re-classification of [redacted] to unfavourable declining condition on 27th October 2014.

SAC, Ramsar and SSSI features
The vegetation and features of the SAC, Ramsar site and SSSI have been reviewed and this indicates deterioration of the site for key features, notably Calcareous Fen (S24), fen orchid and water beetles. The extent of Calcareous Fen is declining due to rapidly increasing *Sphagnum* spp. range expansion across [redacted] at Catfield Fen. This loss of Calcareous Fen also coincides with *c*.50% of the UK's fen orchid population. The fen orchid colony is now being squeezed by *Sphagnum* growth towards dykes. A survey of the main fen orchid colony in 2014 failed to record 20 plants recorded in the 2013 surveys. In addition, repeat water beetle surveys (2004 & 2014) have shown declines in common and widespread species (*c*.30%), as well as rare and scarce species.

Water chemistry
Water chemistry has been monitored across Catfield Fen and Sutton Fen. This has highlighted the change to more acidic conditions across the fen compartments within [redacted] Dyke water chemistry is largely alkaline. Detailed investigations have also identified alkaline areas on both sites, which strongly suggest groundwater inputs, and are therefore vulnerable to changes in groundwater supply due to abstraction. Notably at Sutton Fen these areas are isolated from river inputs and will likely have a high reliance on groundwater availability.

Water levels
There has been concern that reduced groundwater inputs to the SAC/SSSI could be contributing to lower water levels. Consequently, water level data has been reviewed to determine the extent of drying across [redacted] Having reviewed the available data held by the Environment Agency the RSPB has been unable to analyse the data due to significant limitations, particularly related to the datum levels at which readings have been taken. Consequently, these data cannot be relied upon to predict future water level changes.

Historic and current site management
Given the deterioration in SAC, Ramsar and SSSI features on [redacted] the RSPB has reviewed historic and current site management. This indicates that the observed changes are not due to an inappropriate management regime. Management of [redacted] has been and is comparable to other fen sites within the Broads which have not experienced such changes. Notably turf ponding is proportionately greater on [redacted] than other Broads fen sites. Whilst such management (which has been consented by Natural England) has continued, turf ponding and other interventions have failed to re-establish key features of the site. Restoration attempts have simply been colonised by acidic, species-poor communities dominated by *Sphagnum* species. This is at odds with observations at Sutton Fen where similar management intervention is supporting and enhancing the designated

features. This strongly indicates that factors underpinning the site hydrology, particularly water chemistry (which has been sampled), are fundamentally changed and further enhanced management alone would be insufficient to restore the site to favourable condition.

Water management
As well as site management the RSPB has reviewed the information regarding water management on the site. This indicates that the observed changes are not due to inappropriate water management on site. The internal system is largely isolated from the river. However, the RSPB is aware that overtopping of the northern sluice does occur, allowing external water into the system at infrequent intervals. Water is also able to overtop the southern bund. Some degree of seepage through The Rond will also occur but this has not been quantified. Within the system, water is able to move from dykes into fen compartments during the winter. During the summer, flows do occur on the dykes. Taken together this indicates that the water exchange on the site is good and that this is not a limiting factor for the site.

Groundwater model
The ecological and hydrological data indicates that water abstraction is potentially adversely affecting the SAC and SSSI more widely than just Snipe Marsh. Having reviewed the groundwater model the RSPB has identified a number of limitations and simplifications that indicates the outputs of the model are not sufficiently precautionary and that water abstraction impacts may be greater than currently predicted. Critically, the RSPB considers that the key issues for conservation on the fen have still not been adequately addressed. Whilst the modelling gives an indication of the contribution of the crag water to the fen, it cannot be considered to provide a definitive representation of the water regime at or near the surface. Consequently, doubt remains regarding the robustness of any conclusions that can be drawn from the modelled outputs, especially for a complex site such as Catfield Fen and a precautionary approach must be adopted.

4. Conclusions

Given the international, European and national importance of sites that could be impacted by the proposed water abstraction, the RSPB considers that the Environment Agency, in accordance with role as a competent authority under the Habitats Regulations, cannot consent these applications. The RSPB therefore **supports** the EA's "minded to" decision. However, the RSPB considers the reasoning can be further strengthened by the Environment Agency by reference to the growing body of evidence demonstrating adverse effects on Catfield Fen (notably [redacted] now being classified as in Unfavourable Declining condition). A clear connection of groundwater to Sutton Broad can also be demonstrated and any activity that could reduce alkaline inputs to that area of the SAC, by even small amounts, could have significant effects and must be addressed appropriately in order to avoid the risk of an adverse effect on this component of the SAC.

The RSPB remains committed to working constructively with all parties to identify suitable options that ensure water is used efficiently within the Catfield area to maintain conservation objectives and that also enables appropriate agricultural activity to continue.

Yours sincerely,

Philip Pearson (Dr)
Senior Conservation Officer